

REMARKS

The Official Action of October 31, 2003 has been carefully considered and reconsideration of the application as amended is respectfully requested.

The specification has been amended to make changes of an editorial and clerical nature thereby to address the objections raised in paragraphs 5 and 6 of the Official Action. The claims have been rewritten to remove the bases for the objections and rejections appearing in paragraphs 7-14 of the Official Action, and more clearly to distinguish over the cited art. In addition, the specification has been amended at page 5, first paragraph, to page 6, first paragraph, to insure consistency between the specification and claims in accordance with the provisions of MPEP Sections 1302.01, 2173.03 and to insure basis for the claim terminology in accordance with the provisions of MPEP Section 608.01(o).

The amendments to the specification and claims draw clear support from the application as filed. In particular, support for the amendment to step (a) of claim 21 to recite the intensity level of the plasma can be found in the last paragraph on page 8 of the specification as filed. Support for the recitation of mixtures of the monomers appears in original claim 3, and in the recitation of "one or more monomers" in original claim 1 and throughout the specification as filed. Support for the recitations in claim 42 appears in original claims 11 and 12. Support for the recitations in claims 52 and 53 appears in the Examples of the specification (see, e.g., page 11, lines 1-3).

Applicants respectfully note that the specification as filed listed the same compound under two different names, i.e., glycidyl methacrylate and 2,3-epoxy propyl methacrylate. This redundancy which would have been clear to one of skill in the art, has been corrected in the amended specification and claims.

All claims presently of record are believed to be free of the informalities noted by the Examiner at paragraphs 7-14 of the Official Action and are otherwise believed to be sufficiently definite to satisfy the dictates of 35 USC 112, second paragraph. The specification has been amended to provide proper antecedent basis for the claim terminology in accordance with the dictates of MPEP Section 608.01(o).

Certain claims were rejected under 35 USC 102(e) as allegedly being anticipated by Yializis. Other claims were rejected under 35 USC 103(a) as allegedly being obvious over Yializis either alone or in view of the other references cited in paragraphs 22-31 of the Official Action. Applicants respectfully traverse these rejections.

Yializis discloses a method of forming a hybrid polymer film which comprises cleaning and preparing a surface of a polymer substrate by plasma treatment, and forming a polymer film on said plasma-treated surface by radiation curing a flash evaporated monomer. Nothing is indicated nor suggested about plasma polymerization of a monomer.

Specifically, Yializis discloses a hybrid film comprising polypropylene (PP) coated with a vacuum-deposited, radiation-curable acrylate monomer film that is polymerized upon curing (see Yializis at column 4, lines 19-21). A flash-vaporized monomer is condensed on the surface of the polymer film and radiation-cured by a suitable radiation curing means 30, such as an electron beam gun, (column 4, lines 42-43); examples of suitable means include apparatus which emit electron beam or ultraviolet radiations, specifically an electron beam gun, (column 5, lines 31-43).

Specifically, the polymer substrate is a polymer film the surface of which is cleaned by a plasma treatment using a first plasma treatment unit 36 to remove adsorbed oxygen, moisture and low molecular weight species from the surface prior to forming the acrylate coating thereon, (column 4, lines 60-65). “Just before the coated polymer film 20 is wound on the take-up spool 22 it passes through a second plasma treatment until 38 where the coated surface of the film is exposed to plasma to finish curing the acrylate coating and to remove any accumulated electronic charge”, (column 4, line 65 to column 5, line 2).

Yializis does not teach use of gas plasma for polymerizing the monomer, wherein a gas of monomer is excited by the gas plasma, i.e. a state wherein a wholly or partially ionized gas comprising neutral gas molecules, gas fragment, free electrons, cations, and excited molecules. Yializis teaches plasma treatment before and after formation of the acrylate coating, but does not teach the formation of the acrylate coating using plasma treatment.

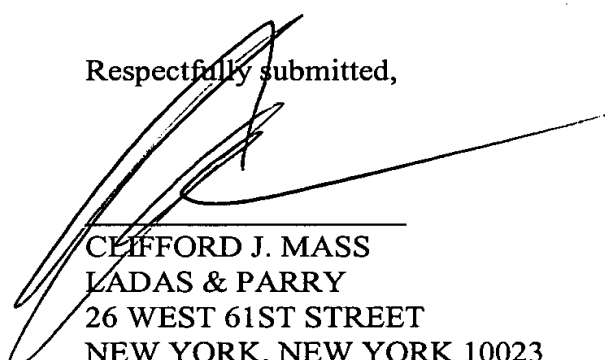
Yializis also does not show or suggest subjecting a substrate surface to gas plasma at the recited intensity to generate radicals in the polymer surface without depolymerization of the polymer surface. The Examiner has acknowledged that Yializis does not teach that subjecting a substrate surface to a gas plasma generates radicals on the surface but argues that this would inherently result. Even assuming for the sake of argument that this were true, Yializis cannot be considered inherently to result in the recited generation of radicals without depolymerization of the polymer surface because Yializis is silent as to the plasma intensity. As discussed in MPEP Section 2112, the fact that a certain result **may** (as opposed to would **necessarily**) occur is not a basis for a rejection based on inherency.

The above deficiencies of the cited primary reference are not supplemented by the cited secondary references and, accordingly, it is respectfully submitted that the cited references cannot establish even a *prima facie* case of obviousness for the invention as defined in any of the claims. With particular respect to claim 52, Applicants respectfully note that the polymer surface in Yializis is treated with plasma at the first plasma treatment unit 36 whereas the monomers are deposited downstream at a different site, i.e. monomer evaporator 28. The surface is not again treated with plasma until it reaches the second plasma treatment unit 38 (see Yializis at column 4, lines 33-67 and Fig. 1). It may thus be appreciated that Yializis does not show or suggest the recitation in claims 52 and 53 of adding a vapor comprising the monomers to the gas plasma.

Claim 53 further distinguishes over the references by the use of the "consisting essentially of" transitional, which precludes a step which materially changes the basic and novel character of the claimed invention. Yializis requires a radiation-cured polymer, which is precluded by the claim language.

In view of the above, it is respectfully considered that all rejections and objections of record have been overcome and that the application is now in allowable form. An early notice of allowance is earnestly solicited and is believed to be fully warranted.

Respectfully submitted,



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